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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/584,566 05/31/00 FORBES

L	503,691,051
EXAMINER	

021186 MM91/0427  
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH  
P.O. BOX 2938  
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ART. UNIT	PAPER NUMBER
JACKSON, IRVING	6

DATE MAILED:  
2010

04/27/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

584566

Applicant(s)

Forbes

Examiner

Group Art Unit

2815

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- ☒ Responsive to communication(s) filed on 3/9/01
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-23 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-23 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
  - ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been received.
  - ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_
  - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 25
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

Office Action Summary

Art Unit: 2815

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-11,13-17,19-23, are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Horiguchi IEDM.

Horiguchi shows a vertical floating gate electrode, vertical control gate, and "horizontal" substrate. Applicant's claims do not structurally distinguish over Horiguchi. The "approximate" claimed dimensions do not structurally distinguish over Horiguchi.

4. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiguchi in view of Watanabe '601 or Hong '213.

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Watanabe teaches control gates on each side of a floating gate and connected with a horizontal portion. Likewise Hong shows similar structure. It would have been obvious to have practiced a similar horizontal connecting portion in a device as Horiguchi to increase the coupling capacitance. Applicant's claims are obvious structure.

5. Claims 1-11,13-17,19-23, are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lin '076.

Lin shows sidewall floating and control gates over a "horizontal" substrate. Applicant's claims are anticipated or obvious over Lin.

6. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Watanabe or Hong.

From Watanabe or Hong it would have been obvious to have practiced control gate on each side of the floating gate of Lin to increase the coupling capacitance. Applicant's claims are obvious structure.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin or Horiguchi in view of Yang '945.

From Yang it would have been obvious to have practiced floating gates on each side of a control gate to increase coupling, minimize overerase problems, and maintain small cell size, etc. Claim 17 is obvious structure.

8. Claims 1-10,13-15,17,19,21-23, are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yang '945.

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Yang shows vertical gates adjacent a horizontal substrate.

9. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Hong, Lin, or Yang.

Watanabe teaches vertical floating and control gates. From either Hong, Lin, or Yang it would have been obvious to have practiced a design with both the floating and control gates of Watanabe type device over the channel region to control the channel region with both gates. Applicant's claims are obvious structure.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See Hsu and Hwang.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson whose telephone number is (703) 308-4937. The examiner can normally be reached on M-F from 9 to 5. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Jerome Jackson, Jr.  
Primary Examiner